What is claimed is:

1. A survivor path decoding apparatus for a Viterbi decoder with a constraint length of K, comprising:

a best survivor unit for receiving path metrics of 2^{K-2} local winner states from which a best state is selected every L iterations, wherein said local winner states are chosen from 2^{K-2} pairs of odd and even states, respectively; and

a survivor memory comprising:

a register-exchange network for receiving decision bits of 2^{K-1} states and generating decision vectors of survivor paths leading to said 2^{K-1} states at instant i according to said decision bits of said 2^{K-1} states from instant $i-L$ to instant i, wherein said 2^{K-1} states are divided into said 2^{K-2} pairs of odd and even states, said decision vectors of said 2^{K-1} states are output every L iterations, and each of said decision vectors has a length of L bits and; and

a trace-back unit for storing said decision vectors of said 2^{K-1} states and finding a global survivor path sequence by following said decision vectors back from the best state at instant $i-L$, such that L decoded bits are output every L iterations.

2. The apparatus as recited in claim 1 wherein said best survivor unit comprises γ 2-to-1 comparators for

choosing the best state among said 2^{K-2} local winner states by comparing said path metrics of said 2^{K-2} local winner states in $L-1$ iterations.

3. The apparatus as recited in claim 2 wherein the number of said 2-to-1 comparators, γ, is given by:

$$\gamma = \left\lceil \frac{2^{K-2}-1}{L-1} \right\rceil$$

where $\lceil \cdot \rceil$ denotes a ceiling function.

4. The apparatus as recited in claim 1 wherein said number of L is equal to a divisible factor of a data payload length for a conformant 802.11g system.

5. The apparatus as recited in claim 4 wherein said number of L is equal to 8 for said conformant 802.11g system.

6. The apparatus as recited in claim 1 wherein said survivor memory features a decoding window length of $\Gamma = L(L-2)+K-1$.

7. A rate $1/n$ Viterbi decoder with a constraint length of K comprising:

a branch metric generator for computing a plurality of branch metrics, each of which is a distance between a corresponding branch label and a currently received data symbol including n decision metrics;

an add-compare-select module, responsive to said branch metrics, for generating decision bits of 2^{K-1} states along with path metrics of 2^{K-2} local

winner states, wherein said 2^{K-2} local winner states are selected from 2^{K-2} pairs of odd and even states, respectively, and said 2^{K-1} states are divided into said 2^{K-2} pairs of odd and even states;

a best survivor unit for receiving said path metrics of said 2^{K-2} local winner states from said add-compare-select module and selecting a best state from among said 2^{K-2} local winner states every L iterations; and

a survivor memory comprising:

a register-exchange network for receiving said decision bits of said 2^{K-1} states from said add-compare-select module and generating decision vectors of survivor paths leading to said 2^{K-1} states at instant i according to said decision bits of said 2^{K-1} states from instant $i-L$ to instant i, wherein said decision vectors of said 2^{K-1} states are output every L iterations and each of said decision vectors has a length of L bits; and

a trace-back unit for storing said decision vectors of said 2^{K-1} states and finding a global survivor path sequence by following said decision vectors back from the best state at instant $i-L$, such that L decoded bits are output every L iterations.

8. The Viterbi decoder as recited in claim 7 wherein said best survivor unit comprises γ 2-to-1 comparators for

choosing the best state among said 2^{K-2} local winner states by comparing said path metrics of said 2^{K-2} local winner states in $L-1$ iterations.

9. The Viterbi decoder as recited in claim 8 wherein the number of said 2-to-1 comparators, γ, is given by:

$$\gamma = \left\lceil \frac{2^{K-2}-1}{L-1} \right\rceil$$

where $\lceil \cdot \rceil$ denotes a ceiling function.

10. The Viterbi decoder as recited in claim 7 wherein said number of L is equal to a divisible factor of a data payload length for a conformant 802.11g system.

11. The Viterbi decoder as recited in claim 10 wherein said number of L is equal to 8 for said conformant 802.11g system.

12. The Viterbi decoder as recited in claim 7 wherein said survivor memory features a decoding window length of $\Gamma = L(L-2)+K-1$.

13. The Viterbi decoder as recited in claim 7 wherein said decision metrics are hard-decision data if quantized to one-bit precision.

14. The Viterbi decoder as recited in claim 7 wherein said decision metrics are soft-decision data if quantized with more than one bit of precision.